Aircraft Albedo Pod (ALPO)

Completed Technology Project (2017 - 2019)

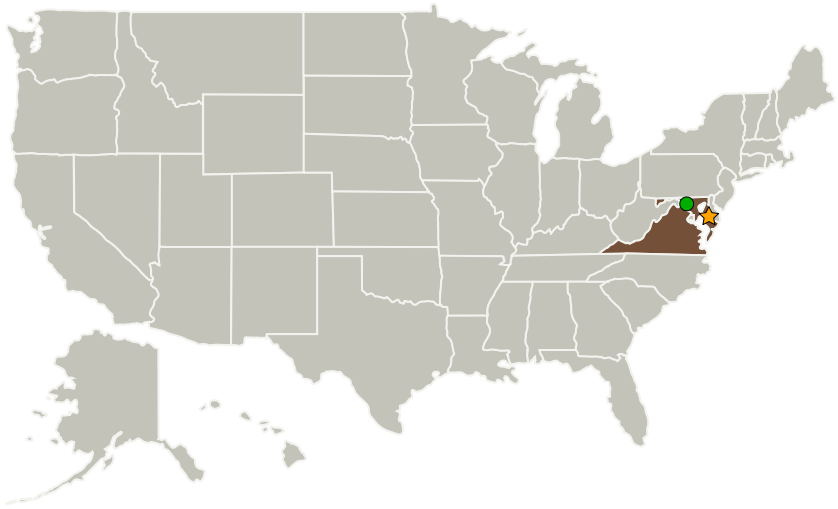
Project Introduction

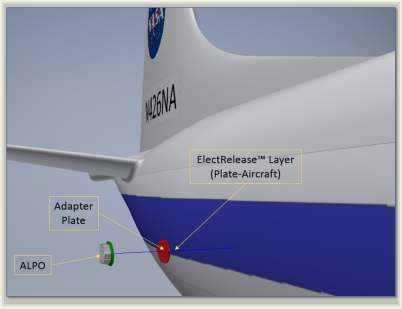
ALPO is an effort to develop an airborne science instrument pod utilizing an advanced integration concept that minimizes structural impacts to the host aircraft. This proof of concept study will lead to a new NASA technology providing modular platforms for instrument development and could eventually leverage the high volume of DOD and commercial air traffic for collecting large coverage area Earth Science data measurements at a fraction of the cost of satellites.

Anticipated Benefits

Instrument integration on aircraft has historically required airframe structural modification. ALPO will incorporate ElectRelease™, an adhesive that bypasses traditional bolting/riveting methods of attachment, leaves no trace once removed and facilitates easy repositioning on exterior of aircraft. While the immediate focus will be albedo data aboard the NASA P-3, adapter plates can be tailored to any aircraft and the pod will be designed with the versatility to host a wide range of miniaturized sensors.

Primary U.S. Work Locations and Key Partners





Exploded View: ALPO to Aircraft

Table of Contents

Organizational Responsibility

Responsible Mission Directorate:

Mission Support Directorate (MSD)

Lead Center / Facility:

Wallops Flight Facility (WFF)

Responsible Program:

Center Independent Research & Development: GSFC IRAD

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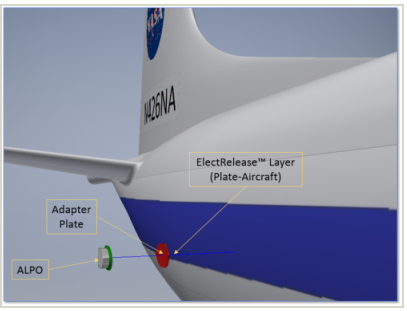
Organizations Performing Work	Role	Type	Location
★Wallops Flight Facility(WFF)	Lead Organization	NASA Facility	Wallops Island, Virginia
●Goddard Space Flight Center(GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland

Primary U.S. Work Locations	
Maryland	Virginia

Images



Untitled
Exploded View: ALPO to Aircraft
(https://techport.nasa.gov/image/34529)

Project Management

Program Manager:
Peter M Hughes

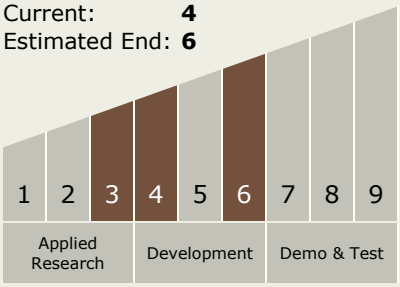
Project Managers:
Daniel A Mullinix
Michael G Hitch

Principal Investigator:
Martin N Nowicki

Co-Investigator:
Taylor A Green

Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **6**



Technology Areas

Primary:

- TX14 Thermal Management Systems
  - TX14.1 Cryogenic Systems
    - TX14.1.3 Thermal Conditioning for Sensors, Instruments, and High Efficiency Electric Motors

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Target Destination

Earth